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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/344,299	06/24/1999	STEPHEN R. SCHWARTZ	1538/20	8897

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EXAMINER

PENDLETON, BRIAN T

ART UNIT

PAPER NUMBER

2644

DATE MAILED: 01/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/344,299

Applicant(s)

SCHWARTZ ET AL.

Examiner

Brian T. Pendleton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,8-21,24,25,28,29 and 36-43 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

- 5) ☐ Claim(s) _____ is/are allowed.

- 6) ☒ Claim(s) 1-4,8-21,24,25,28,29 and 36-43 is/are rejected.

- 7) ☐ Claim(s) _____ is/are objected to.

- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.

- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)

- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.

- 5) ☐ Notice of Informal Patent Application (PTO-152)

- 6) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

The indicated allowability of claims 12-18 is withdrawn in view of the newly discovered reference(s) to Ono, US Patent 4,409,435. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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Claims 1, 2, 19, 20, 37, and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Zoels, US Patent 6,385,323. Zoels discloses an apparatus comprising microphones 1a and 1b for providing first and second signals, filters 8a and 8b, and level adjusters 2a and 2b. Signal amplification is done for the purpose of microphone balancing or ensuring that the two microphones have the same sensitivity. As disclosed in column 2 lines 38-40, signal amplification can be done in opposite directions for the microphones. Claims 1 and 19 are met. As to claims 2 and 20, since the microphone amplification stages are adjusted according to the difference between the two microphone output signals, inherently their magnitude changes are equal in order to balance the outputs. Per claims 37 and 41, the difference element 3 combines the two signals.

Claims 1-4, 19-21, 37, and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamada et al, US Patent 6,301,365. Yamada et al disclose an audio signal mixer comprising first signal at CH1 input terminal, second signal at CH2 input terminal, first and second processors including equalizers 21 and 22 for selecting a frequency band and level adjusters 15 and 16 for adjusting an amplitude level of CH1 in the opposite direction of CH2 using volume control 17. Claims 1, 4, 19 and 21 are met. Per claims 2 and 20, figure 3 shows that for an increase in one channel, there is an equal decrease in the other channel. As to claim 3, there is disclosed level adjusters 11 and 12 for adjusting the level of the first and second signals prior to providing them to first and second processors. Per claims 37 and 41, there is disclosed summer 18.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 36 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. Yamada et al do not disclose that the frequency selections are the same in channels one and two using the equalizers 21 and 22. However, it would have been obvious to one of ordinary skill in the art at the time of invention to choose the same frequency band. Since the equalizers are manually adjustable, there existed the possibility to use the same frequency band for the two channels. One would have been motivated to use the same band for the purpose of ensuring that the cross fading of the input signals didn't have any unwanted signals being reproduced. The cross fading manipulation would not have been effective if different frequency bands were chosen. Some of the signals that were to be decreased in amplitude and faded out would not be decreased at all if they were not chosen.

Claims 8-11, 24, 25, 28, 29, 38, 39, 42, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al in view of Eastty, US Patent 6,246,773. As discussed above, Yamada et al disclose an audio signal mixer comprising first signal at CH1 input terminal, second signal at CH2 input terminal, first and second processors including equalizers 21 and 22 for selecting a frequency band and level adjusters 15 and 16 for adjusting an amplitude level of CH1 in the opposite

direction of CH2 using volume control 17. The channel inputs are signals generated from compact disc players. As suggested in column 7 lines 23-29, the mixer is not limited to CD players, but for other reproducing apparatuses. Musical instruments meet the criteria of reproducing apparatuses. Thus, it was within the scope of Yamada et al to input signals from instruments into the inventive mixer. The mixer provides a cross-fading operation so that one signal is decreased while the other signal is increased. The wanted signal is amplified, while the unwanted signal is attenuated. Using the mixer with instruments, one instrument signal could be attenuated while the other instrument signal is amplified. Eastty discloses an audio signal processing apparatus comprising microphone 1 placed near musical instrument(s) (first position) and microphone 2 placed near a noise source (second position) in figure 5. The apparatus is set up to cancel the noise signal from the musical signal. Therefore, it was taught to place a microphone close to a noise source for the purpose of canceling the unwanted noise signal from the sound picked up by the microphone positioned near the musical instrument(s). It would have been obvious to utilize the noise cancellation arrangement of Eastty to supply the mixer of Yamada et al with musical instrument signals for the purpose of canceling interfering noise signals during musical instrument sound reproduction. The modification of Yamada et al would have provided the one input channel with the unwanted noise signal and another input channel with the wanted musical instrument signal mixed with the noise. The mixer could have then been manipulated to decrease the noise signal amplitude while increasing the instrument signal amplitude, effectively canceling the noise. Advantages of using the Yamada et al

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mixer in conjunction with Eastty supplied signals included giving the user the capability of selecting the frequency band of the signals to be processed and increasing the functionality of the mixer to include noise cancellation. Claims 8 and 24 are met. As to claim 9, there is disclosed level adjusters 11 and 12 for adjusting the level of the first and second signals prior to providing them to first and second processors. As to claims 10 and 25, the use of any type of instrument would have been obvious, since they all are susceptible to noise. The placement of the microphones would have been by experimentation for optimal noise cancellation. An artisan of ordinary skill in the art would have been able to locate the microphones in the best position without undue experimentation. Regarding claim 11, the level adjusting gain ratio would have been an obvious design choice. Per claims 28 and 29, it would have been obvious at the time of invention to use an acoustic pressure microphone for the first signal source (the wanted signal) since it emanates from the musical instrument and is best served, as one of ordinary skill in the art would have know. The type of microphone for the second signal source would have been arbitrary. As to claims 38 and 42, as stated above it was obvious to use the same frequency band in the processors. Per claims 39 and 43, there is disclosed summer 18.

Claims 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ono in view of Eastty. Ono discloses a signal processing system comprising two branches, one branch having high pass filter 4 and amplifier 6, and the other branch having low pass filter 3 and compressor 5. As taught in the abstract and column 2 lines 3-54, low

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frequency signals are reduced in level above a certain threshold in order to improve the signal/noise ratio assuming that the noise lies in the low frequency range. Therefore, Ono teaches decreasing one signal (low frequency noise) while increasing the other signal (high frequency sound), albeit the low frequency noise is not decreased until above a certain loudness threshold (see line 47). Ono only uses one microphone to pick up the signal, which is a mix of wanted and unwanted components. Eastty uses a plurality of microphones in its noise cancellation apparatus. The use of the apparatus of Eastty was advantageous because the noise microphone 2 generated a better estimate of the noise signal rather than the one microphone of Ono. Therefore, one of ordinary skill in the art would have been motivated to use the arrangement of Eastty. It would have been obvious to one of ordinary skill in the art at the time of invention to use a secondary microphone, per the teaching of Eastty, in the invention of Ono to improve its noise canceling capabilities. With the secondary microphone, the output signal could be sent directly to the branch with the low pass filter 3 (hereafter named the first branch). Modifying Ono to include a second microphone yields an apparatus that provides a first signal from a first position relative to an instrument and an alternative signal from a second position relative to the instrument, the first signal supplied to the low pass filter 3, the alternative signal supplied to the high pass filter 4, level adjusters 5 and 6 and combiner 7. Claim 12 is met. Per claim 13, the low pass filter has a cutoff of 1 kHz. It would have been obvious to set the high pass filter to a cutoff of 1 kHz for continuity reasons. As to claims 14 and 15, Ono is directed to speech signals. Modifying the arrangement for processing signals from instruments would have necessitated a

different frequency range, therefore it would have been obvious to use the frequency ranges claimed and to make the filters variable as various instruments fall into different frequency bands. One of ordinary skill in the art would have realized the most advantageous pole location for the filters for a particular instrument without undue experimentation. Per claim 17, the high-pass filter of Ono has a cutoff at around 500-700 Hz and the low-pass filter has a cutoff at 1 kHz. As to claim 16, Examiner takes Official Notice that the structure of the filters were one of obvious design. An ordinary artisan would have been well versed in signal shaping for determining the best response for a system. As to claim 18, the use of any type of instrument would have been obvious, since they all are susceptible to noise.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ross, US Patent 5,291,558; Bateman et al, US Patent 4,947,440; Shoda et al, US Patent 5,177,801; Suzuki, US Patent 5,060,272; Borth et al, US Patent 4,630,305.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Pendleton whose telephone number is (703) 305-9509. The examiner can normally be reached on M-F 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone

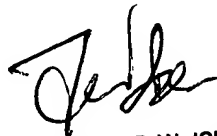
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number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.



Brian Tyrone Pendleton
December 18, 2002



FORESTER W. ISEN
SUPERVISORY PATENT EXAMINER
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